SEA for Sustainable Bioenergy Production

IAIA SEA
September 21-23 2011 Prague, Czech Republic

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Overview

- Background
- Feedstocks
- Sustainability considerations in Africa
- Putting the pieces together
Drivers for bioenergy

Developed countries: GHG reduction & Energy security

Developing countries

- Energy security
- Rural development
- Market opportunity
- Additional income
- Savings in imports of fossil fuels
- Land use and ownership
- Production systems and feedstocks promoted
- Economies of scale
- Value chains;
- Services and infrastructure needed
Causes of increased prices of food 2008
(IFPRI, 2009)

1. Increment between production and demand for food products;
2. Biofuels production;
3. Low investment in agriculture technology and investment;
4. Market policies;
5. Low production of crops due to climatic issues;
6. High costs of agriculture inputs and transport;
7. Population growth
Others

- Price of oil
Main crops for producing “first generation” biofuels

- sugar cane
- sweet sorghum
- cassava
- jatropha
- maize
- soybean
- sunflower
- palm oil

- castor oil
- cotton oil
- peanut oil
- pongamia
Land issues in Africa

• Land tenure (main impacts at local level)
• Land deals: Since 2006, 15m to 20m hectares of farmland in poor countries have been subject to transactions or talks involving foreigners … in deals worth $20 billion-$30 billion (IFPRI, 2009)
• Not all of them have resulted in projects (Wilson, 2009)
Land grabbing, 2010

Sierra Leone: Swiss-based Addax Bioenergy obtains 26,000 ha for sugarcane.

Ghana: Italian-based Agroills obtains 105,000 ha, UK company Jatropha Africa acquires 120,000 ha, ScanFuel (Norway) cultivates 10,000 hectares and has contracts for ca. 400,000 ha, Galten (Israel) acquires 100,000 ha.

Benin: Proposed 300,000 - 400,000 ha of wetlands to be converted for oil palm.

Nigeria: Land acquisitions by the state using foreign capital and expertise. Over 100,000 ha grabbed.

Cameroon: Cameroon/French company expanding palm oil plantations including 60-year lease on 58,000 ha.

Angola: 500,000 ha of land designated for agrofuels. Angolan, Brazilian, Spanish and South African companies.

Congo: Chinese company requests 1 million ha. Italian energy corporation ENI plans palm oil plantation of 70,000 ha.

Swaziland: UK based D1 Oils suspends expansion of jatropha despite promotion by rockstar Bob Geldof.

Ethiopia: 700,000 ha earmarked for sugar cane, 23 million ha suitable for jatropha. UK-based Sun Biofuels operates 5,000 ha. Acasis AG (German) leases 56,000 ha with concessions for another 200,000 ha.

Kenya: Japanese, Belgian and Canadian companies plan to up to 500,000 ha.

Tanzania: 1,000 rice farmers forced off their land to make way for sugarcane.

Mozambique: Investors aim for 4.8 million ha. Over 183,000 ha currently allocated to jatropha. Companies: UK, Italy, Germany, Portugal, Canada and Ukraine.

(Tatedo).
Lack of investment in agriculture in Africa

1980s:
17% of ODA
30% of World Bank lending

Mid 2000s:
4% of ODA
7% of World Bank lending

(Wilson, 2009)
Land availability

Comparative areas in different countries in Africa

- Land area
- Arable land 2005
- Forest area 2005

(Mozambique, Tanzania, Zambia, Malawi, Kenya, Mali, Burkina Faso, Senegal, South Africa, Botswana)

(FAOSTAT, 2009)
RED

- Renewable Energy Directive *on the promotion of energy from renewable sources* (2009/28/EC) sets targets to reduce GHG emissions by 20%, to establish a 20% share for renewable energy, and to improve energy efficiency by 20%, *to be achieved by 2020 (20-20-20).*

- set out in Article 17 (2) to (5), soil, water and air protection, the restoration of degraded land, the avoidance of excessive water consumption relevant information”

- GHG emissions, biodiversity, carbon stocks, soil, air, water, restoration of degraded land, land rights, and labour conditions (ILO) not affect food security conservation areas
FRAMEWORK

Assurance reporting

Enforcement

Objectives

Regional and local levels

Enforcement

Research

Data & indicators

Demonstration

Regional and local levels

Environmental

- Land use change
- Environmental impacts
- LCA and supply chain
- GHG and other emissions (e.g. NOx, particulates)
- Waste

Social

- LCA Social impacts
- GHG and other emissions (health)
- Social organisation
- Land property
- Gender

Economic

- National, regional and local economy
- Livelihoods
- Incentives
- Barriers

Policy & Institutions

- Policies plans & projects
- Directives
- Incentives
- Barriers
- Institutional capacity

(Diaz-Chavez, 2003, 2006)

Cumulative and indirect impacts
Some initiatives on standards

- Roundtable on Sustainable Palm Oil (RSPO)
- Roundtable on Responsible Soy (RTRS)
- Roundtable on Sustainable Biofuels (RSB)
- Global Bioenergy Partnership (GBEP)
- CEN, ISO
- Others no standards: GBEP
FARA report

1. To look for evidences of food to bioenergy conversion (if any) or early indications of this in the future.
2. To review the role of policies and institutions bioenergy development
3. To identify stakeholders for bioenergy production and their role in this activity.

West Africa: Senegal and Mali
East Africa: Kenya and Tanzania
Southern Africa: Mozambique and Zambia
Review of Ghana
Areas under biofuel development in Tanzania

Kiwele, 2010
Mapping stakeholders

National authorities, regulations

Regional/Local authorities, regulations

Stakeholders productive level, small scale regulations, including NGOs, farmers, outgrowers

Stakeholders Industry level, Local producers, including NGOs, farmers hired

Key:
Direct links (--------)
Indirect links (-.-.-.-.)
Needed links (.........)
Policies and institutions

- Regional efforts for policy in Southern Africa through SADC with Probec the *Programme for Basic Energy and Conservation* (ProBEC) with GTZ
- ECOWAS, ECCAS, COMESA
- International aid organisations collaborating with different countries in Africa (GTZ in Mozambique, SIDA Swedish Agency in Tanzania, CIRAD - Centre de Coopération Internationale en Recherche Agronomique pour le Développement- in Burkina Faso)
- South African Biofuel Association
- The Biofuels Association of Zambia
- Energy Strategy Botswana
Forms of production

Farmer
- family
- community
- cooperative

Industrial
- workers
- outgrowers
- community
- cooperative

Government

Scale
(+, +, +)

Productive system
- Husbandry
- Forestry
- Agriculture
- Medicines
- Construction
- others

Markets
- Electricity
- Fuel
Land covers unsuitable for bioenergy crops in Africa

Areas that are unsuitable and/or unavailable for bioenergy crops in sub-Sahara’s arid and semi-arid regions

(Watson, 2010)
Links of policies

- Political agendas
- Industry
- energy
- Rural development & agriculture
- transport

SEA

Sustainable development

- environment, economic, social, policy

(Diaz-Chavez, 2006)
Food

Feedstocks

Skills & RD

Regional/local

Stakeholders

Monitoring

Options

PPP

Risks

Ecosystem services

Communities well-being

Biodiversity

Indicators

STRATEGIC (SEA)
Integrating elements

• Individual isolated studies based on sustainability assessment

• SEA elements:
  – triggers, objectives,
  – driver forces
  – stakeholders,
  – data
  – individual plans

• Example of Tanzania → SEA
Thank you